**The Forecasting and Evaluation of the Sales of Meat Over the Next Two Years**

Kevin D. Lim

7815073

ECON 4822

Prof. Gregory Mason

October 29, 2020

Retailers provide consumers with necessities for their everyday lives such as food. Food sales have been relatively stable with slow growth until the COVID-19 pandemic hit. (Goddard, 2020). It is especially interesting in the meat industry. The industry is concentrated and not resilient. The pandemic highlighted flaws with producers having excess livestock and processing plants lacking the capacity to process the meat. For example, the drop in demand for chicken resulted in farmers destroying eggs in the hatcheries. Meat sales have partially dipped as a result of the drop in demand for meat (Attwood & Cother, 2020; Griekspoor, n.d.; Ross, 2020). The paper will aim to forecast retail sales of meat over the next two years by using previous trends in retail sales within Canada. One thing to note is that there are various kinds of meats that can be observed. To narrow this down, I would like to focus specifically on four major areas, being chicken, pork, beef, and fish.

The literature review will determine how external factors will affect the demand for meat over the next few years. Methods of forecasting will be discussed. In addition, other various factors that may affect the demand will be discussed. The paper is divided into two parts: forecasting methods and factors that affect demand.

**Basic Methods of Forecasting**

              Forecasting allows us to predict demand for products over a short horizon. Factors that can affect demand for products can be driven from everything to holidays, weather, seasons, promotions, special events, and prices. These multiple factors can make forecasting difficult to perform. Some basic forecasting models include qualitative techniques, time series analysis, and casual methods. It is suggested that a combination of forecasting methods is used to produce the best results. Though we should keep in mind that while forecasts can predict future sales, it is far from a perfectly accurate model as sudden changes can always occur that may affect demand. Also, long-term forecasts decrease in accuracy the longer the time period, due to uncertainty. Regardless, forecasting is quite useful, and we will briefly discuss two types of forecasting methods, qualitative techniques and time series analysis (Ma & Fildes, 2021; Putra, n.d.).

              A time-series analysis uses several years of data for available products to pinpoint relationships and trends. It also helps to explain any systemic variation within the data because of seasonality and identifies reoccurring cyclical patterns. The challenge with using time series analysis is that the data must be filtered out from other factors such as seasonal variations or sales from a promotion campaign. Another forecasting method we can look at is qualitative forecasting (Chambers et al., 1971).

              Qualitative forecasting is a type of forecasting method that is effective for the short-term. It is useful when there is little to no data to work with. There are a variety of qualitative techniques with their own strengths and weaknesses. For example, executive opinions are a qualitative technique that uses views from executives or experts within the industry to provide insight. It is a quick and easy method, but it executive opinions are a result of group-think. These experts and executives tend to conform, which stifles open discussion (Ma & Fildes, 2021; Putra, n.d.).

**Part 2: Factors affecting retail sales**

COVID-19 will be a major factor affecting sales in the coming years.  Many consumers have lost their jobs, meaning they have less income to spend. As a result, consumers will make more economical food choices, such as buying ground beef over steak and regular over organic meats. Additionally, a large proportion of North America consumes food outside of homes. According to Boston Consulting Group, 50% of meat is consumed outside of homes in the US. But with the pandemic limiting food services, consumers are cooking at home more often. As a result, they still consume the same number of calories, but the percentage of meat consumed is lower (Ontario Farmer, 2020; Schaer, 2020).

Additionally, environments can affect the demand for goods.  For example, food spending and consumption depend partially on environmental factors such as distance to retailers or nearby restaurants as an alternative or competitor. The government may need to introduce policies to make food more affordable or accessible if neighborhoods do not have access to nearby retailers (Ver Ploeg & Wilde, 2018).

Labor is another factor in the demand for meat. Processing plants are forced to cut down on the number of workers to ensure the safety of workers as more than 20,000 has already been infected. This means that they are not operating at maximum capacity and are not processing meat efficiently, which will have mid- to long-term impacts within the industry. The truck drivers that deliver the meat also drive long distances without cargo, known as non-revenue miles, driven further by the closure of non-essential businesses (*COVID-19 Hits Meat and Beverage Hard - ProQuest*, 2020; Hailu, 2020).

Finally, meat alternatives can affect demand. Meat is generally associated with luxury and taste. However, some consumers have ethical concerns behind meat production. But alternatives like plant-based proteins and lab-grown meat can act as a substitute. For example, Beyond Meat has its plant-based protein products in over 35,000 retail outlets. A German study that compared meat and meat alternatives suggest that people do not mind alternatives as long as they resemble the taste and text of processed meat while providing good value for their money. (Charlebois, n.d.; Michel et al., 2021; Mouat et al., 2019).

**Conclusion**

Combining a time-series analysis and qualitative techniques is a possible method to conduct the forecast. However, there could be alternative methods that could be suitable for forecasting the demand for meat, so methods may change. The factors that may affect demand will be used to explain how potential trends affect the forecast. The literature review will provide a basis as I delve deeper into the topic.

Citations

Attwood, S., & Cother, H. (2020). How will the COVID-19 pandemic shape the future of meat consumption? In *Public Health Nutrition; Cambridge* (pp. 1–15). Cambridge University Press. http://dx.doi.org.uml.idm.oclc.org/10.1017/S136898002000316X

Chambers, J. C., Mullick, S. K., & Smith, D. D. (1971, July 1). How to Choose the Right Forecasting Technique. *Harvard Business Review*, *July 1971*. https://hbr.org/1971/07/how-to-choose-the-right-forecasting-technique

Charlebois, S. (n.d.). *Beyond Meat should look beyond meat; The plant-based substitute is now in over 35,000 retail outlets around the world—Canadian Business & Current Affairs Database—ProQuest*. Retrieved October 23, 2020, from https://search-proquest-com.uml.idm.oclc.org/cbcacomplete/docview/2268780400/FD054984E75C4322PQ/1?accountid=14569

*COVID-19 hits meat and beverage hard—ProQuest*. (2020, August). https://search-proquest-com.uml.idm.oclc.org/docview/2435721009/DC0354512DC24042PQ/5?accountid=14569

Goddard, E. (2020). The impact of COVID-19 on food retail and food service in Canada: Preliminary assessment. *Canadian Journal of Agricultural Economics/Revue Canadienne d’agroeconomie*, *68*(2), 157–161. https://doi.org/10.1111/cjag.12243

Griekspoor, PJ. (n.d.). *COVID-19 impact highlights meat processing vulnerability—ProQuest*. Retrieved October 21, 2020, from https://search-proquest-com.uml.idm.oclc.org/docview/2402826067/C67B56DAD5E04920PQ/11?accountid=14569

Hailu, G. (2020). Economic thoughts on COVID-19 for Canadian food processors. *Canadian Journal of Agricultural Economics/Revue Canadienne d’agroeconomie*, *68*(2), 163–169. https://doi.org/10.1111/cjag.12241

Ma, S., & Fildes, R. (2021). Retail sales forecasting with meta-learning. *European Journal of Operational Research*, *288*(1), 111–128. https://doi.org/10.1016/j.ejor.2020.05.038

Michel, F., Hartmann, C., & Siegrist, M. (2021). Consumers’ associations, perceptions and acceptance of meat and plant-based meat alternatives. *Food Quality and Preference*, *87*, 104063. https://doi.org/10.1016/j.foodqual.2020.104063

Mouat, M. J., Prince, R., & Roche, M. M. (2019). Making Value Out of Ethics: The Emerging Economic Geography of Lab-Grown Meat and Other Animal-Free Food Products. *Economic Geography*, *95*(2), 136–158.

Ontario Farmer. (2020, July 28). *Pandemic sends global meat eating into retreat; Per capita consumption this year is expected to be at a nine-year low—Canadian Business & Current Affairs Database—ProQuest*. https://search-proquest-com.uml.idm.oclc.org/cbcacomplete/docview/2427972947/8FFE395762A941E1PQ/7?accountid=14569

Putra, L. D. (n.d.). *Qualitative Forecasting Methods and Techniques*. Retrieved October 17, 2020, from http://accounting-financial-tax.com/2009/04/qualitative-forecasting-methods-and-techniques/

Ross, S. (2020, May 6). *Thousands of chicks euthanized as COVID-19 causes plummet in demand: Report*. Montreal. https://montreal.ctvnews.ca/thousands-of-chicks-euthanized-as-COVID-19-causes-plummet-in-demand-report-1.4928503

Schaer, L. (2020, October 6). *Where’s the beef in a post-COVID world?; Ten takeaways for Canada’s beef industry from a global food marketing pro—Canadian Business & Current Affairs Database—ProQuest*. https://search-proquest-com.uml.idm.oclc.org/cbcacomplete/docview/2448791047/8FFE395762A941E1PQ/1?accountid=14569

Ver Ploeg, M., & Wilde, P. E. (2018). How do food retail choices vary within and between food retail environments? *Food Policy*, *79*, 300–308. https://doi.org/10.1016/j.foodpol.2018.03.005